When the gas passes from a larger channel into a smaller channel the velocity changes from 7mm to Fmax- If the velocity Fmm corresponds to a velocity head A_mm and F_{ma}x to a velocity head h_{maiK} then to produce the increase in velocity from F_{mto} to Fmax a velocity head will be required equal to /$t_m$ax~^min.

This quantity represents the resistance, or the velocity head required by one tier of the checkerwork.

If there are N tiers, their total resistance or velocity head required will be

5 =

in which A_t is the weight of 1 cu m of the gas in motion at the temperature t.

B. What will be the velocity head required to overcome the resistance offered by the changes of velocity of the air in passing through a checkwork 6 m in height (52 tiers)? The average temperature of the air is

50+1050

= 550°.

The velocities are F_mm = 0 m 50 per second, $F_m$ax=l rn 00 per second.

The weight of 1 cu m of air at a temperature of 550° is

Fmm =0 m 50 per second corresponding to h_{mln} = 0.01274,

Fmax=l m 00 per second corresponding to $A_m$ax = 0.05097,

from which

ftrnax -fcmta = Om 03823 ; ;

&-egen = 0.03823X52X0. 43 = 0 mm 85 of water.

And therefore the resistance due to changes of velocity in the checkerwork is equal to 0 mm 85 of water column, while the regenerator 6 m in height produces a hydrostatic pressure of

A = 6(1. 29-0. 43) =5 mm 16 of water.